Source Water Assessment Program (SWAP) Report For Assabet Water Company/Harvard Acres (Draft)

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- Inventory land uses within the recharge areas of all public water supply sources;
- Assess the susceptibility of drinking water sources to contamination from these land uses; and
- Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date DRAFT Prepared: December 2, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	Assabet Water Company/Harvard Acres
PWS Address	Adams Drive
City/Town	Stow, Massachusetts
PWS ID Number	2286001
Local Contact	Russel Tierney
Phone Number	(978) 369-3644

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	2286001-01G	300	Zone II	Moderate
Well #2	2286001-02G	300	Zone II	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Assabet Water Company gets its water supply from two wells (Well #1 & #2). Well #2 serves as the primary well and Well #1 serves as a backup well. Both wells have a Zone I of 300 feet and a Zone II wich is the primary recharge area defined by a hydrogeologic study.. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and Zone II.

The wells serving the facility are treated to adjust pH for corrosion control. For current information on monitoring results and treatment, and a copy of the most recent Consumer Confidence Report, please contact the Public Water System contact person listed above

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Activities in Zone Is;**
2. **Septic systems;**
3. **Golf course; and**
4. **Aquatic wildlife.**

The overall ranking of susceptibility to contamination for the wells is Moderate, based on the presence of only moderate threat land use or activity in the Zone II, as seen in Table 2.

1. **Zone Is –** Currently, the wells meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Zone Is only contain the access road to the wells. The public water supplier owns and controls all land encompassed by the Zone Is. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

   Recommendations:

   V Keep all new non-water supply activities from the Zone I to comply with DEP's Zone I requirements.

2. **Septic system–** A few homes are located within the Zone II of the water supply. The town of Stow does not have a public sewer system; therefore all of the homes within the Zone II are on septic systems. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

   Recommendations:

   V Residents should be instructed on the proper disposal of spent household chemicals.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	Zone II	Threat	Comments
Access road	Both wells	Both wells	Low	Gravel surface
Fuel Storage Above Ground	Well #2	Well #2	Moderate	Tank is located on paved &impervious surface, contains only gaseous propane
Septic System	No	Both wells	Moderate	See septic systems brochure in the appendix
Golf course	No	Both wells	Moderate	Fertilizer & pesticide use
Aquatic wildlife	Both wells	Both wells	Low	Tributary of Heath Hen Meadow Brook

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

3. **Golf course** -Fertilizer is applied to the golf course lawn that is located within the Zone II. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.
   Recommendations:
   - Do not use fertilizers or pesticides in the Zone I.
   - Use best management practices when applying fertilizer or pesticide in the Zone II.

4. **Aquatic wildlife** - A tributary of Heath Hen Brook flows through the protection area of the water supply. Duck and other wildlife waste in and around the pond is a potential source of contamination to the water supply.
   Recommendation:
   - Discourage wildlife by prohibiting the feeding of ducks or other wildlife.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Assabet Water Company is commended for prohibiting public access to the wells and pumphouse by gating the access to the wells. Assabet Wtaer Company should review and adopt the key recommendations above and the following:

Zone I:

- Keep non-water supply activities out of the Zone I.
- Continue to prohibit public access to the well and pumphouse by locking the gate.

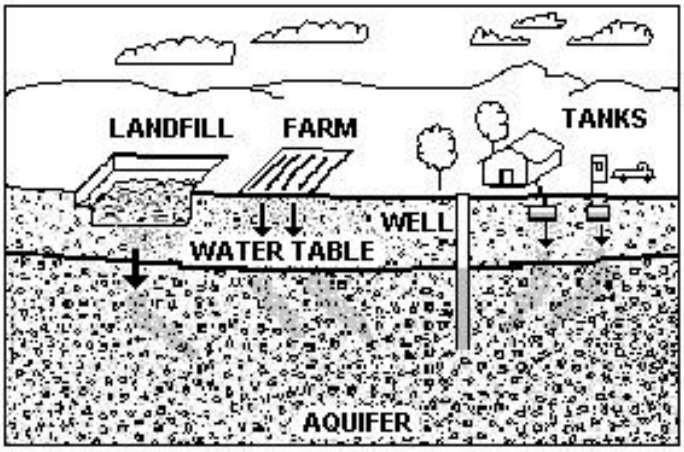

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Training and Education:

- Train residents on proper hazardous material use, disposal, emergency response, and best management practices.

Facilities Management:

- Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.
- Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property

Planning:

- Work with local officials in Stow to include the Assabet Water Company Zone II in Aquifer Protection District Bylaws and to assist you in improving protection. According to a report entitled Source Water Assessment Program Conceptual Zone II Delineation Assabet Water

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, and the local media.

Company Wells Stow Massachusetts, the Town of Stow has adopted Section 5.2, Water Resource Protection District, into its Zoning Bylaw. While the Bylaw is generally protective of water resources, it doesnot fully meet Department requirements. See the above mentioned report for details.

- V Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- V Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet